CLAIMS

- 1. An underlayer coating forming composition characterized by comprising a polymer compound having an epoxy group and a polymer compound having a phenolic hydroxyl group, a carboxyl group, a protected carboxyl group or an acid anhydride structure.
- 2. An underlayer coating forming composition characterized by comprising a polymer compound having an epoxy group and a compound with a molecular weight of 2000 or less having at least two phenolic hydroxyl groups, carboxyl groups, protected carboxyl groups or acid anhydride structures.
- 3. An underlayer coating forming composition characterized by comprising a compound with a molecular weight of 2000 or less having at least two epoxy groups and a polymer compound having a phenolic hydroxyl group, a carboxyl group, a protected carboxyl group or an acid anhydride structure.
- 4. An underlayer coating forming composition characterized by comprising a polymer compound having a phenolic hydroxyl group, a carboxyl group, a protected carboxyl group or an acid anhydride structure and an epoxy group.
- 5. The underlayer coating forming composition according to claim 1 or 3, wherein the polymer compound having a carboxyl group is a compound having acrylic acid or methacrylic acid as a unit structure.
- 6. The underlayer coating forming composition according to claim 1 or 3, wherein the polymer compound having a phenolic hydroxyl group is a compound having hydroxystyrene as a unit structure.
- 7. The underlayer coating forming composition according to claim 3, wherein the compound with a molecular weight of 2000 or less having at least two epoxy groups is a compound having at least three epoxy groups and no aromatic ring structure.
- 8. The underlayer coating forming composition according to claim 2, wherein the compound with a molecular weight of 2000 or less having at least two carboxyl groups

is a compound of formula (1)

HOOCq(
$$H_2C$$
) N N (CH_2)pCOOF N O R_1 (1)

wherein p and q is a number of 1 to 6, R_1 is hydrogen atom, C_{1-6} alkyl group, C_{3-6} alkenyl group, benzyl group, phenyl group or -(CH_2), COOH wherein r is a number of 1 to 6.

9. The underlayer coating forming composition according to claim 3, wherein the compound with a molecular weight of 2000 or less having at least two epoxy groups is a compound of formula (2)

wherein A_1 , A_2 and A_3 each are hydrogen atom, methyl group or ethyl group, R_2 is hydrogen atom, C_{1-6} alkyl group, C_{3-6} alkenyl group, benzyl group, phenyl group or a group of formula (3)

$$A_1 A_2 A_3 - C - C - C + C$$
 (3)

10. The underlayer coating forming composition according to claim 2, wherein the compound with a molecular weight of 2000 or less having at least two phenolic hydroxyl groups is at least one compound selected from the group consisting of a hydroxystyrene oligomer, a substituted bi-phenol compound, a substituted tris-phenol compound, a methylolated phenol compound, a

substituted phenol novolak and a substituted cresol novolak.

- 11. The underlayer coating forming composition according to any one of claims 1 to 10, further comprising a light absorbing compound.
- 12. A method for forming an underlayer coating for use in manufacture of semiconductor device, comprising coating the underlayer coating forming composition according to any one of claims 1 to 11 on a substrate and baking it.
- 13. A method for forming photoresist pattern for use in manufacture of semiconductor device, comprising coating the underlayer forming composition according to any one of claims 1 to 11 on a semiconductor substrate, and baking it to form an underlayer coating, forming a photoresist layer on the underlayer coating, exposing the semiconductor substrate covered with the underlayer coating and the photoresist layer to light, and developing the photoresist layer after the exposure to light.
- 14. The method for forming photoresist pattern according to claim 13, wherein the exposure to light is carried out with a light of a wavelength of 248 nm, 193 nm or 157 nm.